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Valve Symbols

Air Terminal Symbols

Ductwork Symbols

Abbreviations L-Z

Abbreviations A-K

Drawing Symbols

Controls Symbols

Piping Symbols

General Notes

Revisions

Dept. of Veterans Affairs Medical Center

5000 W. National Avenue Milwaukee, WI

Key Plan

Consultants

Project Leader/Architect

Drawing Title

Project Title

Location

Date

Checked By

Drawn By

Final Construction Documents

Project Number

Building Number

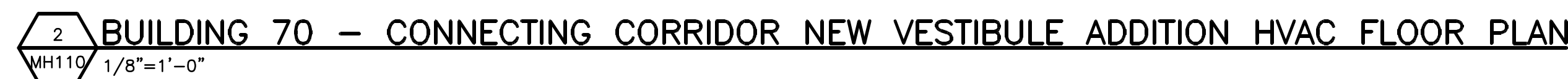
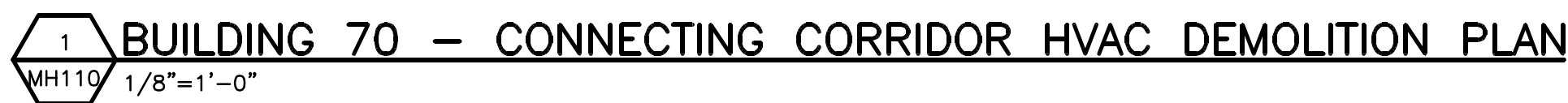
Drawing Number

Office of Facilities Management

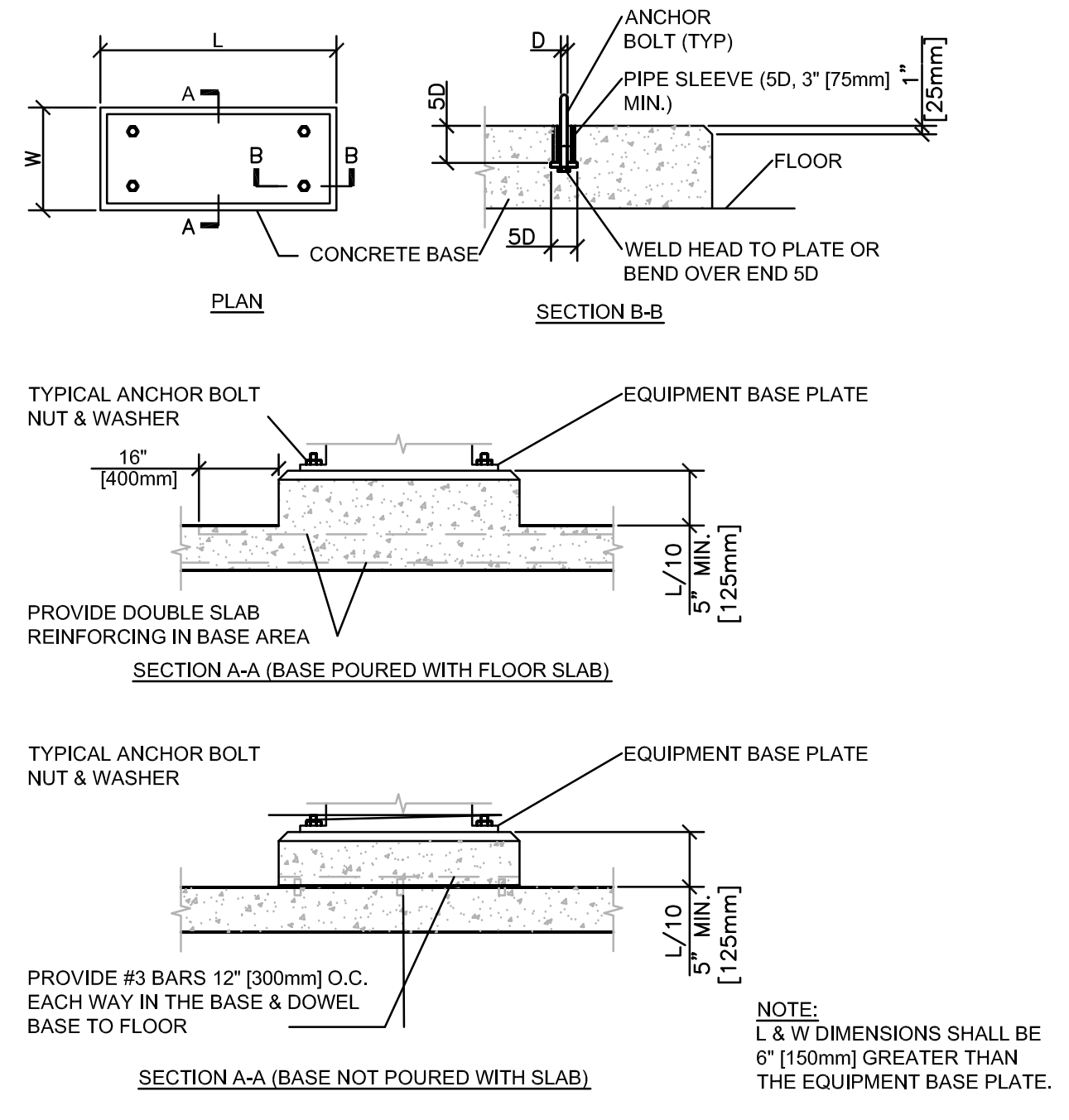
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978 1 2 3 4 5 6 7 8 9

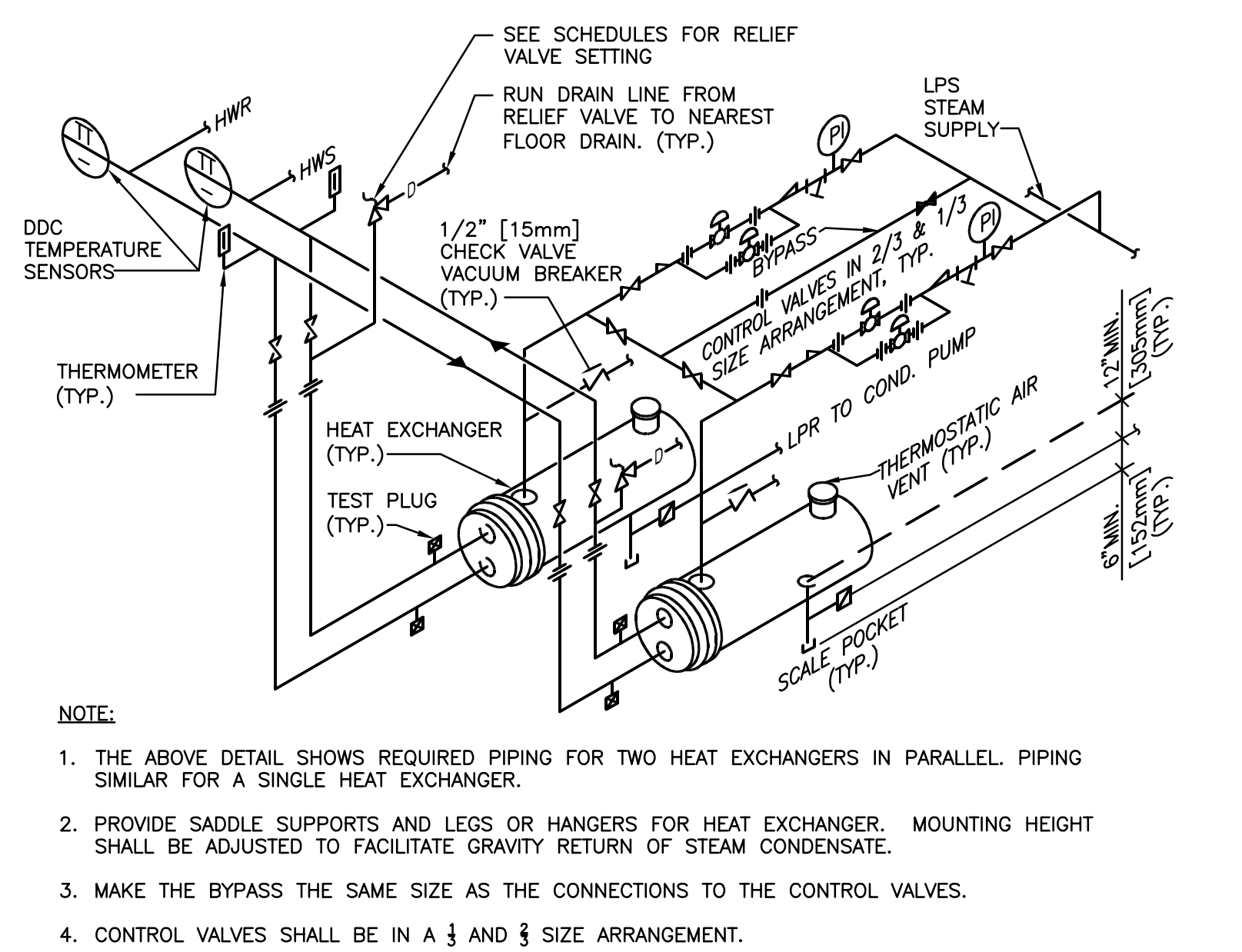
1. SEE DRAWING M1000 FOR COMPLETE LIST OF GENERAL NOTES, ABBREVIATIONS AND SYMBOLS.
2. SEE PROJECT MANUAL FOR SPECIFICATIONS AND OTHER CONTRACT REQUIREMENTS.
3. SEE SHEETS A001 AND A002 FOR PHASING DRAWINGS AND NOTES.
4. SEE PIPING AND DUCTWORK DETAILS FOR LOCATIONS OF BALANCE AND SHUTOFF VALVES AND AIR BALANCING DAMPERS.
5. SEE ARCHITECTURAL DRAWINGS FOR CEILING DEMOLITION WORK PROVIDED BY THE GENERAL CONTRACTOR. IN OTHER ROOMS REQUIRE CEILING DEMOLITION TO FACILITATE HVAC WORK. THE HVAC CONTRACTOR SHALL REMOVE THE CEILINGS NECESSARY TO PERFORM HVAC WORK AND RESTORE THE CEILINGS TO NEW CONDITION WHEN THE WORK IS COMPLETED. COORDINATE WITH OTHER TRADES TO MINIMIZE.
6. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR ALL EXACT AND FINAL LOCATIONS OF CEILING GRILLES AND DIFFUSERS.
7. ALL FIRE DAMPERS SHALL BE TWO (2) HOUR RATED UNLESS NOTED OTHERWISE.

 Department of
Veterans Affairs

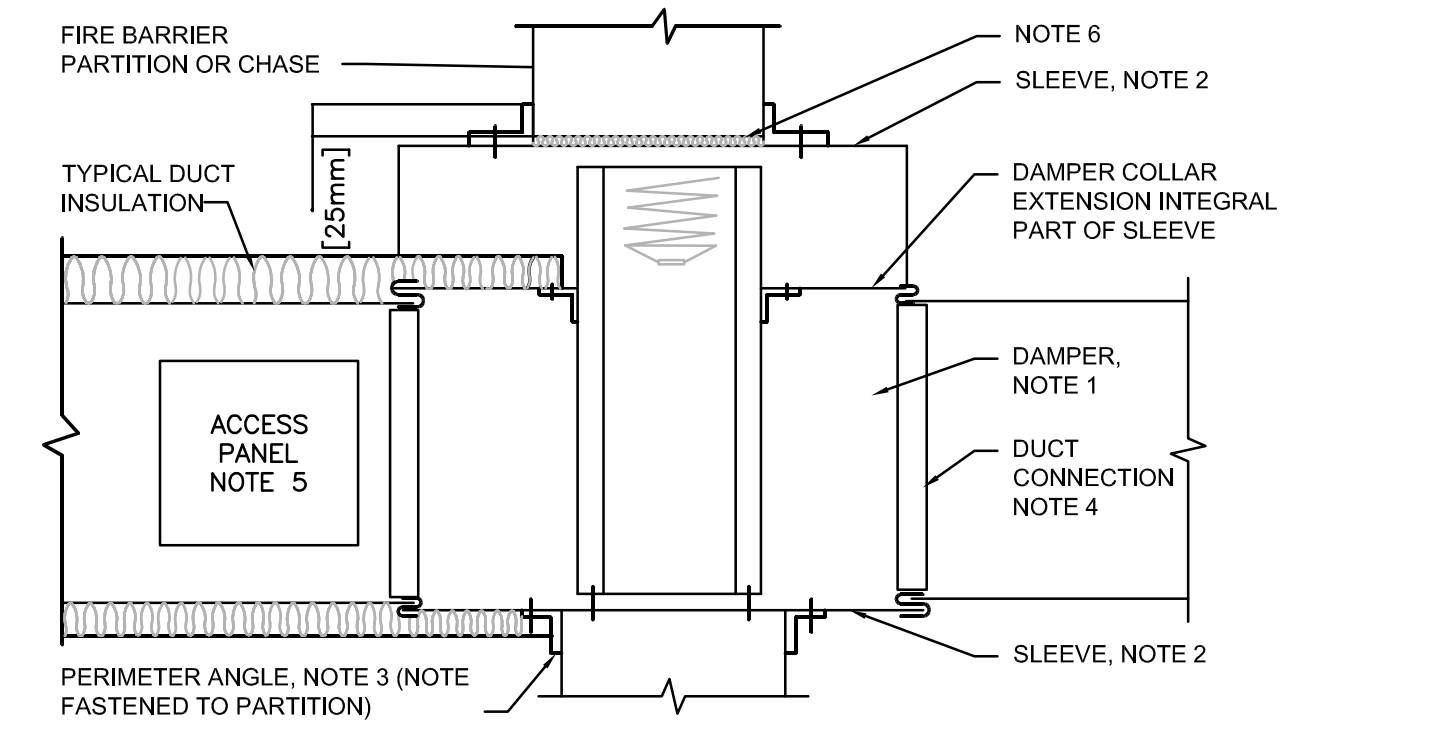
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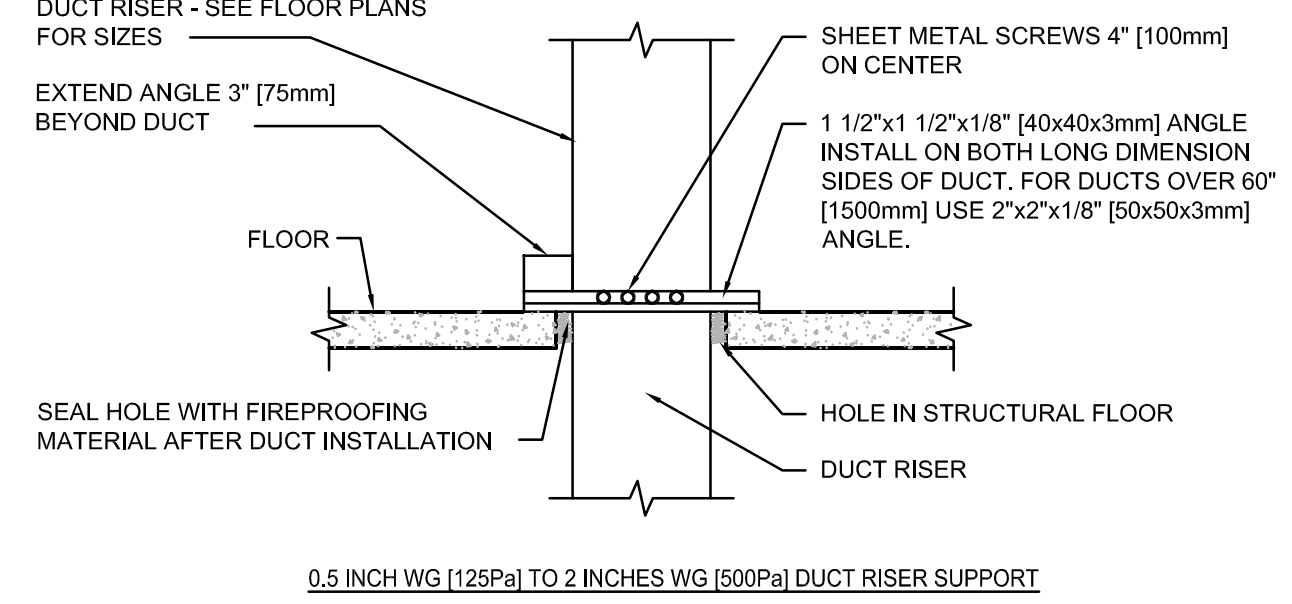
13 CONCRETE EQUIPMENT BASES
NTS



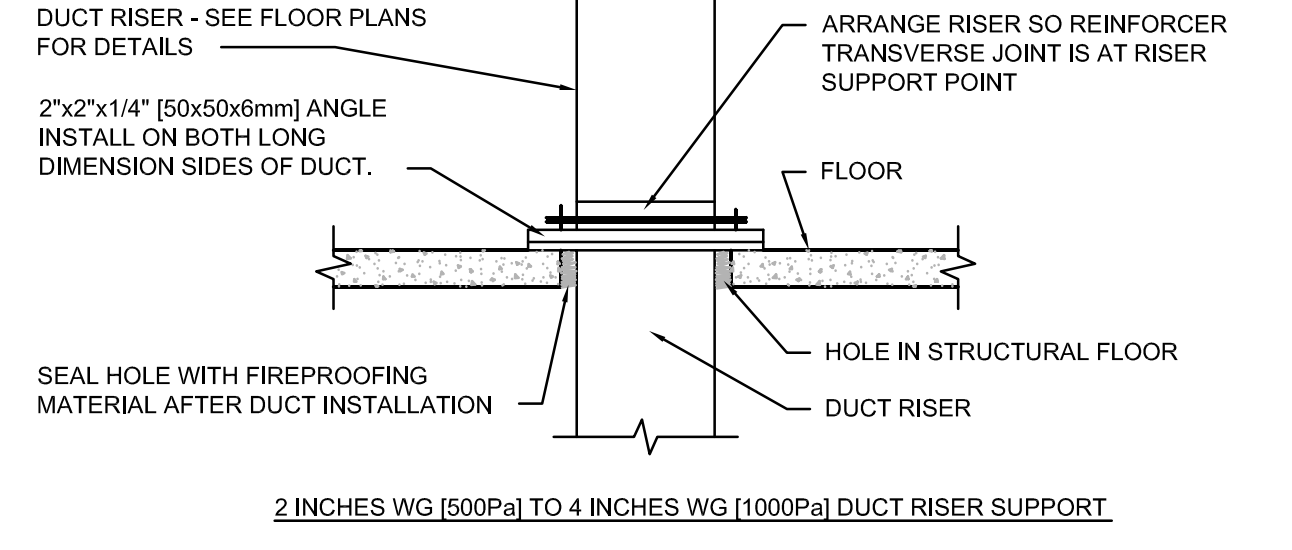
14 HEAT EXCHANGER - STEAM TO HOT WATER
NTS



15 SECTION THRU FIRE DAMPER INSTALLATION
NTS



9 DUCT RISER SUPPORTS
NTS

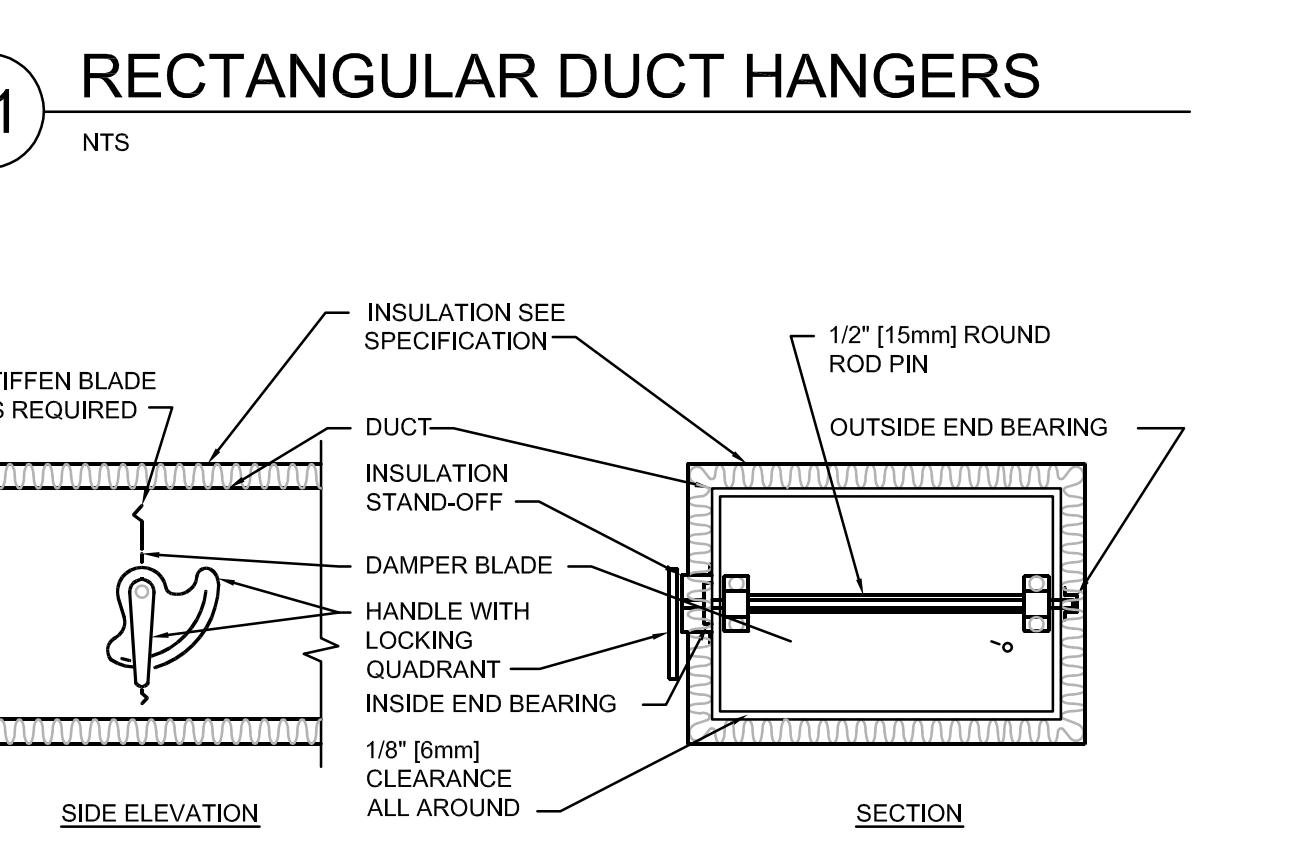
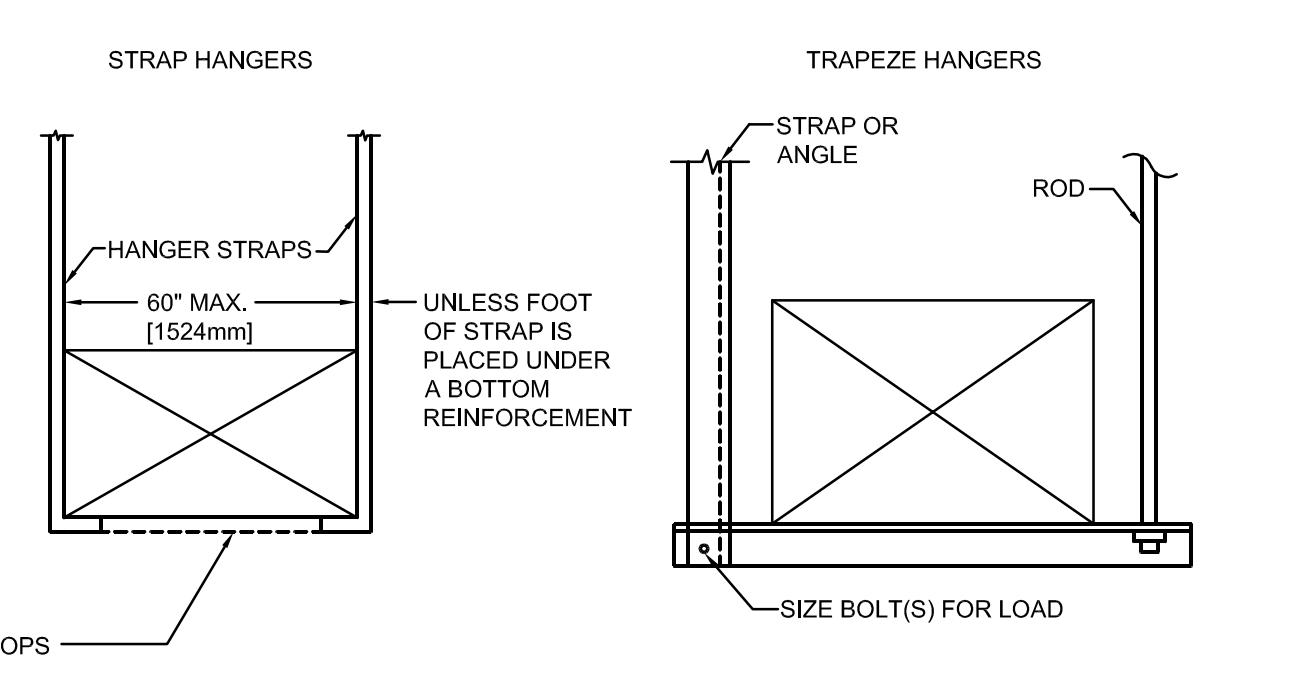


10 ROUND DUCT HANGERS
NTS

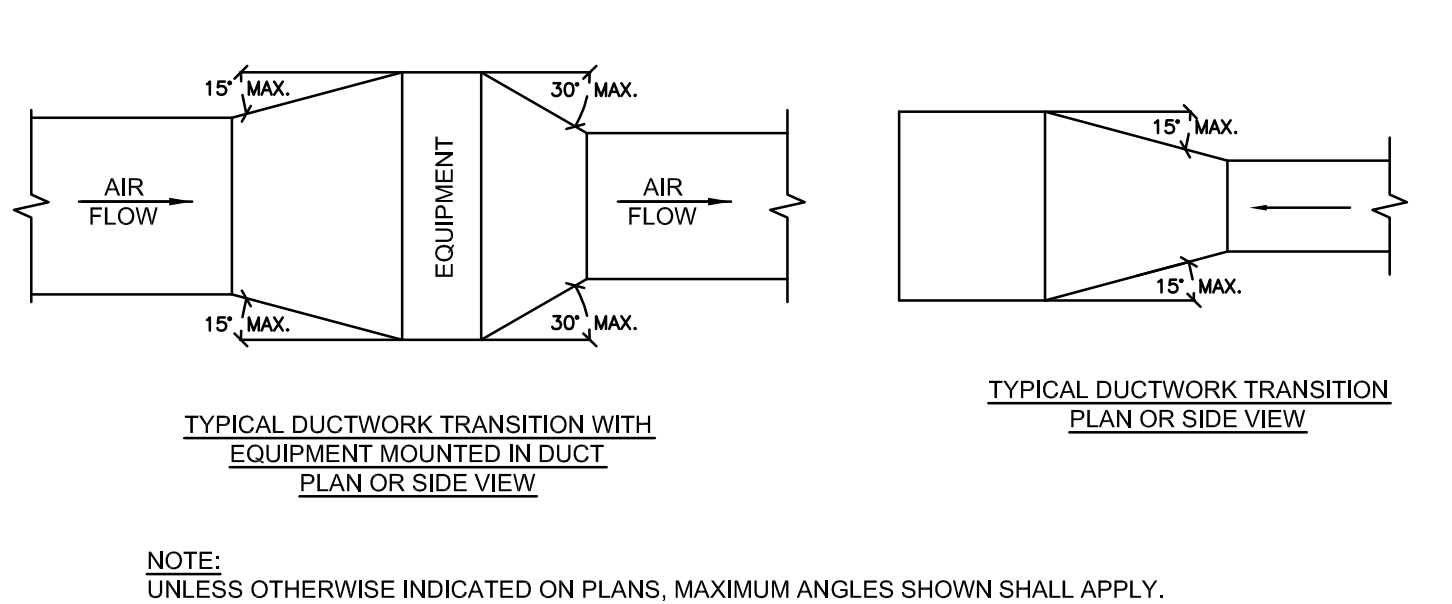
HANGER STRAPS OR RODS

MAX. DUCT Ø IN. (mm)	QUANTITY/SIZE IN. (mm)	MAX. LOAD LBS. (kg)	MAX. SPACING IN. (mm)
28 (650)	ONE 1 [25] x 22 GA STRAP	265 (119)	144 (3600)
36 (900)	ONE 1 [25] x 18 GA STRAP	420 (190)	144 (3600)
50 (1250)	ONE 1 [25] x 16 GA STRAP	700 (317)	144 (3600)
60 (1500)	TWO 3/8 [100] RODS	1320 (598)	144 (3600)
84 (2100)	TWO 1/2 [130] RODS	2500 (1133)	144 (3600)

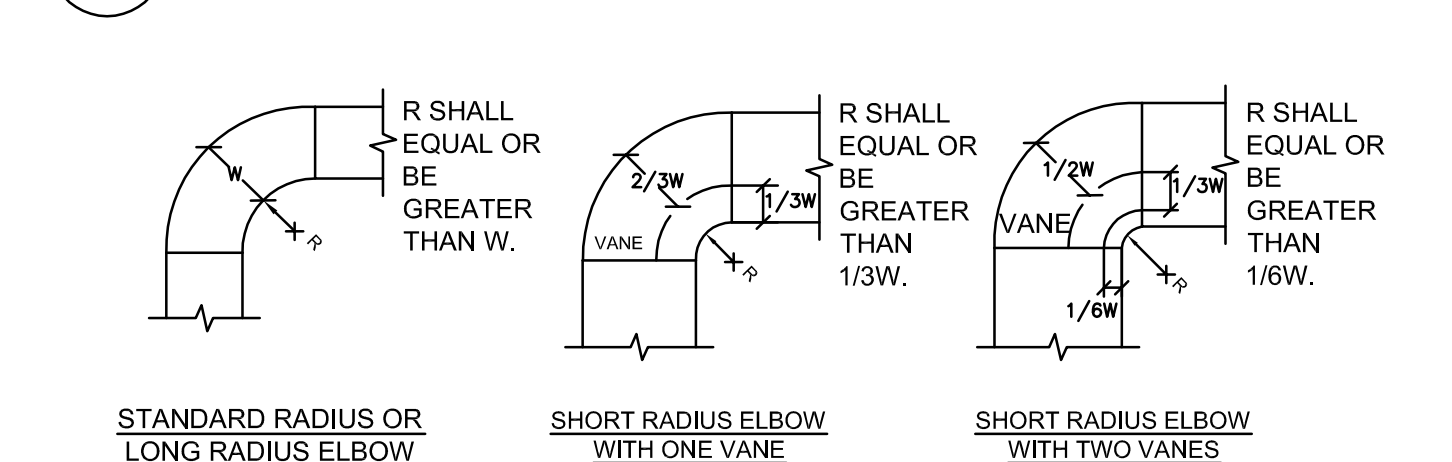
11 RECTANGULAR DUCT HANGERS
NTS



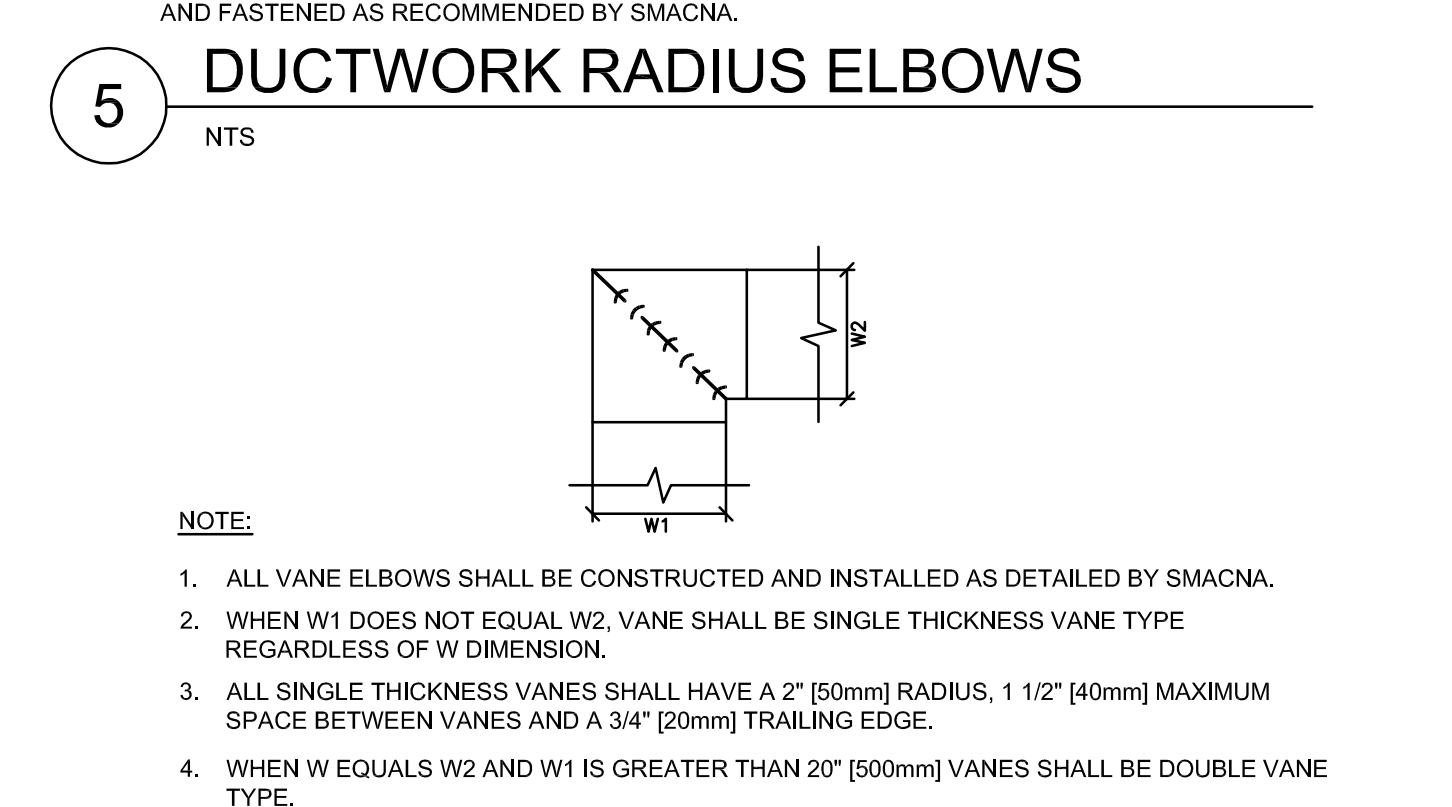
12 VOLUME DAMPER DETAIL
NTS



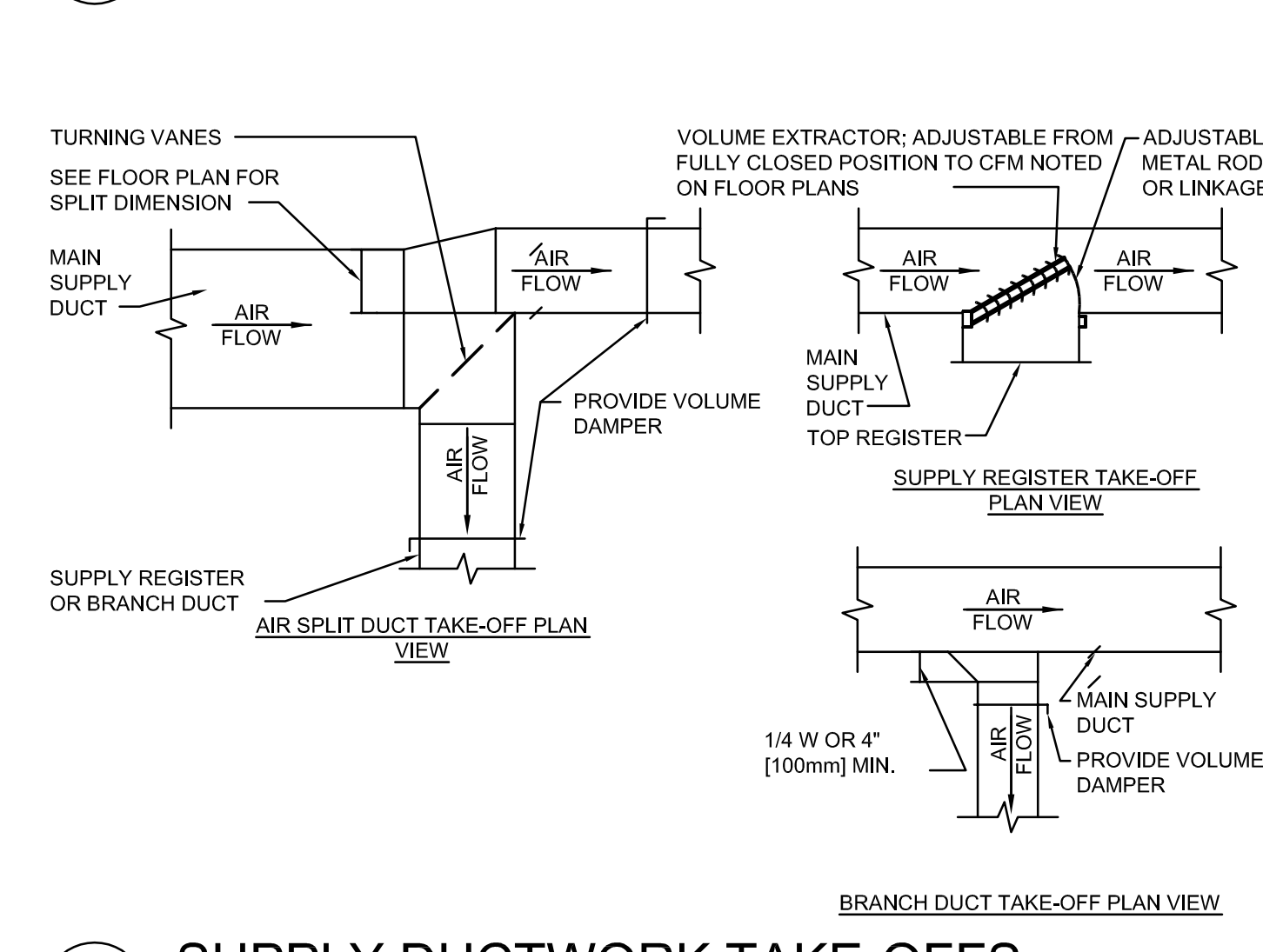
4 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)
NTS



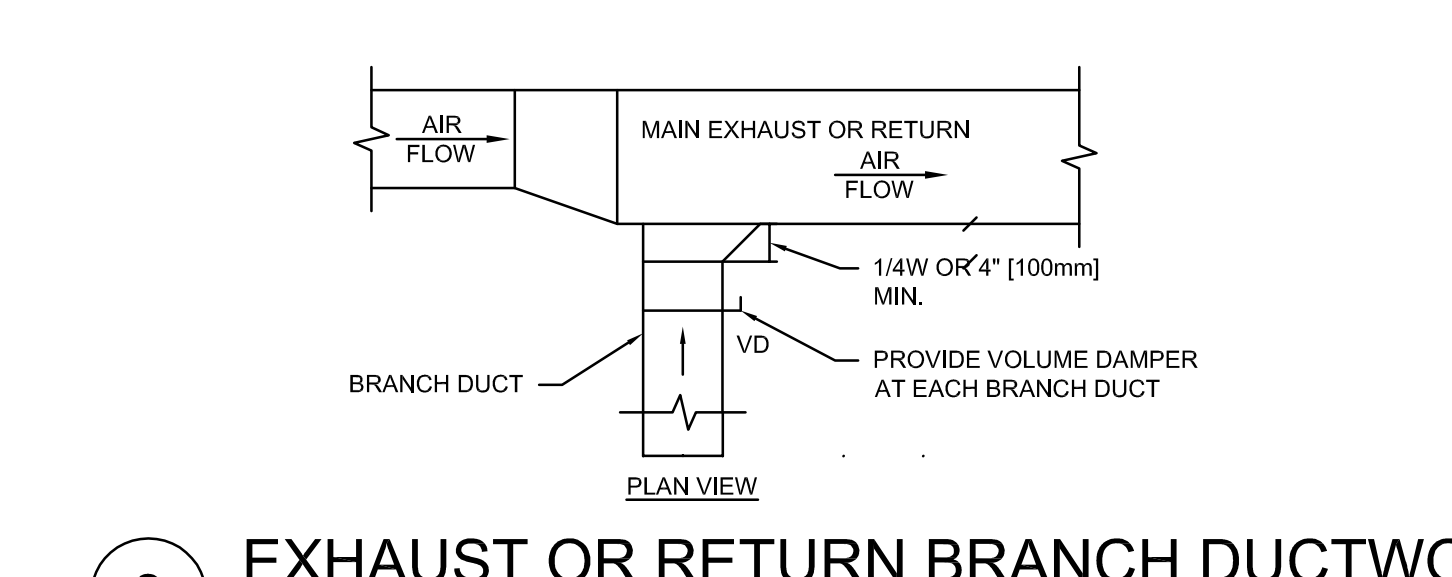
5 DUCTWORK RADIUS ELBOWS
NTS



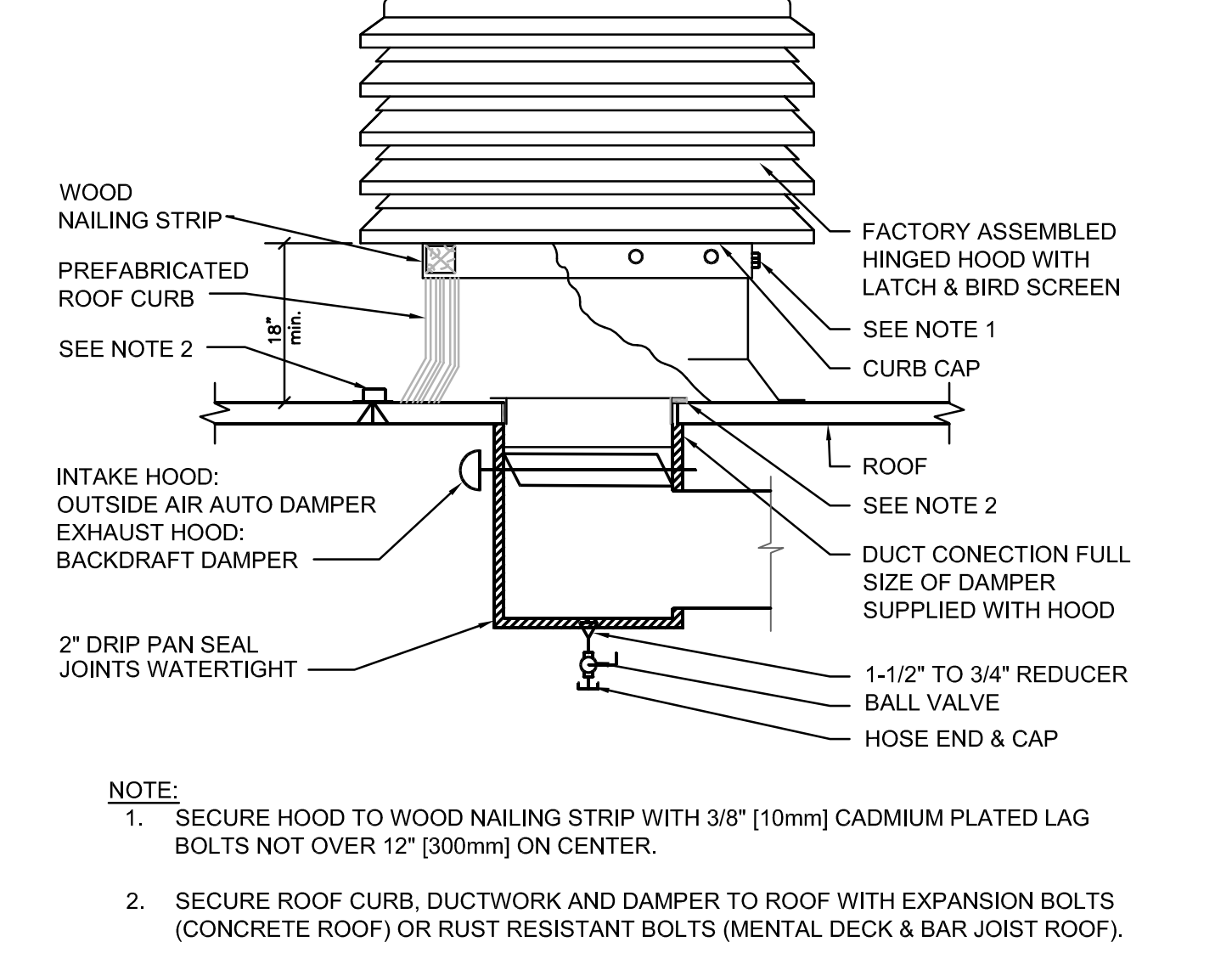
6 DUCTWORK SQUARE VANE ELBOWS
NTS



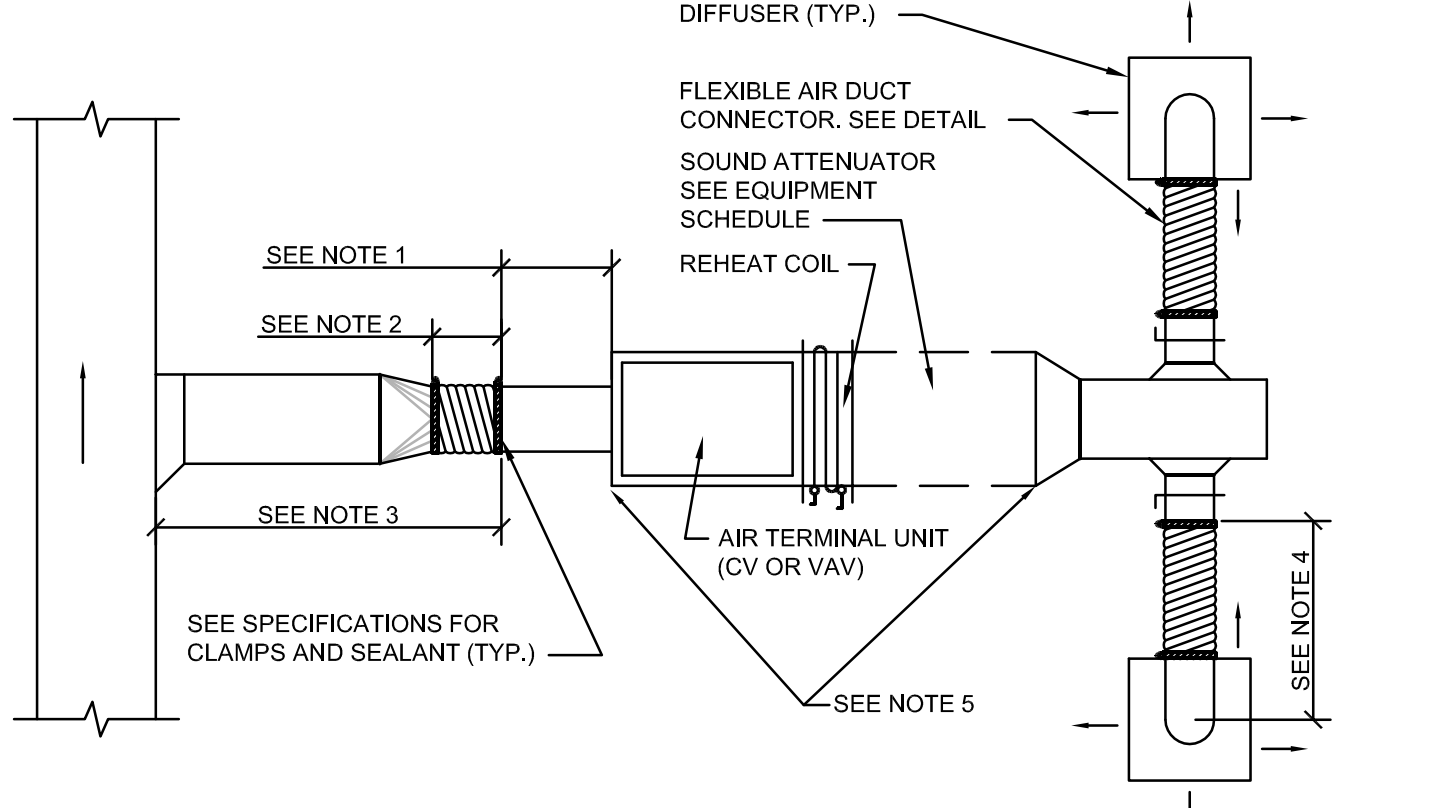
7 SUPPLY DUCTWORK TAKE-OFFS
NTS



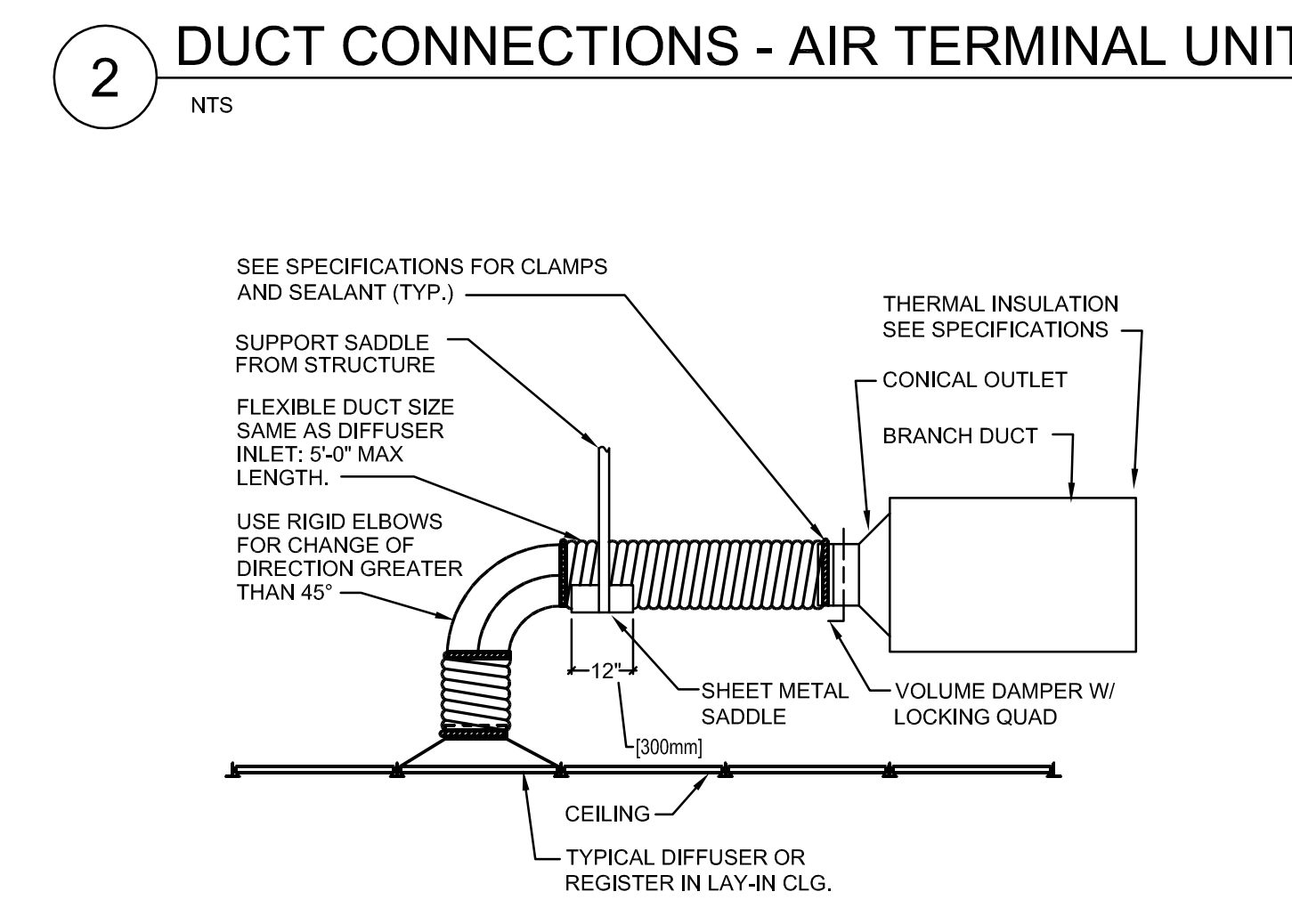
8 EXHAUST OR RETURN BRANCH DUCTWORK
NTS



1 EXHAUST OR INTAKE HOOD
NTS



2 DUCT CONNECTIONS - AIR TERMINAL UNITS
NTS



3 FLEXIBLE AIR DUCT CONNECTOR
NTS

Revisions:

Date

Dept. of Veterans Affairs
Medical Center
5000 W. National Avenue
Milwaukee, WI

KEY PLAN:
EXISTING BLDG. 111
VESTIBULE ADDITION
ENTRY CANOPY

CONSULTANTS:

PROJECT LEADER/ARCHITECT:

Drawing Title

HVAC DETAILS

Project Title

Building 111 - Renovate South Entry

Location

Milwaukee, Wisconsin

Date

June 23, 2014

Checked By:

MJJ

Drawn By:

MJJ

Project Number

695-12-101SCP

Building Number

111

Drawing Number

MM500

Office of Facilities Management

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ROOM AIR BALANCE SCHEDULE																						
ROOM NO	ROOM NAME	AIR HANDLING UNIT NO	TERMINAL UNIT	INDIVIDUAL ROOM TEMP CONTROL	SUPPLY				RETURN OR EXHAUST				ROOM AIR FLOW		ROOM AIR BALANCE	NET INFILTRATION		NET EXFILTRATION		REMARKS		
					ROOM AIR FLOW	# OF AIR DEVICES	AIR DEVICE MARK	SUPPLY FAN	RETURN OR EXHAUST (R/E)	ROOM AIR FLOW	# OF AIR DEVICES	AIR DEVICE MARK				RETURN OR EXHAUST FAN	CFM	[L/s]	CFM		[L/s]	
													CFM	L/S	CFM		L/S	CFM	L/S		CFM	L/S
B0320	PT ROOM	AHU-B0320A	VAV-B0320	Y	2610	[1200]	6	SG-2	SF	R	2610	[1200]	2	RG-2	N/A	X	0	0	[]	0	[]	EXFILTRATION THRU VESTIBULE
C1B508	HALLWAY	AHU-B0320A	VAV-C1B508	Y	3600	[1700]	3	SG-3	SF	R	2900	[1400]	1	RG-3	N/A	X	+700	0	[]	800	[380]	
1355	PATIENT TRAVEL	AHU-B0320A	VAV-1355	Y	350	[170]	2	SG-1	SF	R	350	[170]	1	RG-1	N/A	X	0	0	[]	0	[]	
1357	ALCOVE	AHU-B0320A	VAV-1355	N	100	[47]	1	SG-1	SF	N/A	N/A	N/A	N/A	N/A	N/A	X	+100	0	[]	100	[47]	EXFILTRATION THRU VESTIBULE
1358	AGENT CASHIER	AHU-B0320A	VAV-1358	Y	500	N/A	2	SG-1 SG-2	SF	E	500	[240]	1	RG-1	N/A	X	0	0	[]	0	[]	

SINGLE DUCT AIR TERMINAL UNIT SCHEDULE																	
MARK	LOCATION	AREA AND/OR ROOM SERVED	SYSTEM AIR HANDLING	SIZE	AIR FLOW				ADDITIONAL SOUND ATTENUATION REQUIRED	CONTROL TYPE	CONTROL SEQUENCE	REHEAT			PERIMETER SUPPLEMENTAL HEAT LINK	REMARKS	
					MAX	MIN											
					CFM	[L/S]	CFM	[L/S]									
VAV-B0320	B0320A	B0320	AHU-B0320A	24"16"	2610	[1200]	1500	[710]		NONE	VAV	5 DEGREE DEADBAND	(1)	-	-	NONE	
VAV-C1B508	1355	C1B508	AHU-B0320A	24"16"	3600	[1700]	2400	[1100]		NONE	VAV	5 DEGREE DEADBAND	(1)	-	-	FINED PIPE RADIATION	
VAV-1355	1355	1355 & 1357	AHU-B0320A	8"	350	[170]	230	[110]		NONE	VAV	5 DEGREE DEADBAND	(1)	-	-	NONE	
VAV-1358	1357	1358	AHU-B0320A	8"	600	[280]	370	[170]		NONE	VAV	5 DEGREE DEADBAND	(1)	-	-	NONE	

(1) REFER TO HOT WATER COIL SCHEDULE FOR PERFORMANCE DATA.

AIR DEVICES SCHEDULE																	
MARK	TYPE	AIR FLOW				MAX APD	MOUNTING	PANEL/FRAME SIZE		NECK SIZE		NC	DAMPER	FINISH	THROW	REMARKS	
		MIN		MAX				IN x IN	[mm x mm]	IN	[mm]						
		CFM	[L/s]	CFM	[L/s]	IN WG											[Pa]
SG-1	SUPPLY	100	[47]	250	[120]	0.100	[25]	CEILING	24 x 24	[600 x 600]	8 ø	[203 ø]	20	NONE	WHITE	4-WAY	*PRICE - ASPD*
SG-2	SUPPLY	251	[120]	450	[210]	0.100	[25]	CEILING	24 x 24	[600 x 600]	12 ø	[305 ø]	20	NONE	WHITE	4-WAY	*PRICE - ASPD*
SG-3	SUPPLY	1200	[570]	1200	[570]	0.100	[25]	SIDEWALL	138 x 6.5	[3505 x 165]	-	-	20	YES	(4)	1-WAY	*PRICE - LV1*
RG-1	RETURN	300	[140]	600	[280]	0.100	[25]	CEILING	24 x 12	[600 x 300]	8 ø	[203 ø]	20	NONE	WHITE	-	*PRICE - 81*
RG-2	RETURN	1305	[620]	1305	[620]	0.100	[25]	CEILING	24 x 24	[600 x 600]	16 ø	[406 ø]	20	NONE	WHITE	-	*PRICE - 81*
RG-3	RETURN	2800	[1400]	2800	[1400]	0.100	[25]	SIDEWALL	72 x 14	[1800 x 350]	-	-	25	NONE	(4)	-	*PRICE - 89*

1. CEILING SUPPLY GRILLES SHALL HAVE 4-WAY THROW PATTERN.
2. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.
3. PROVIDE SQUARE TO ROUND ADAPTER.
4. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S OPTIONAL FINISHES.

INTAKE/EXHAUST HOOD SCHEDULE												
MARK	LOCATION	SYSTEM AND/OR SERVICE	TYPE	APPLICATION	THROAT SIZE		AIR FLOW		APD		DAMPER TYPE	REMARKS
					IN	[mm]	CFM	[L/s]	IN	[Pa]		
IH1	ROOF	AHU-B0320A	INTAKE	DUCTED	58 x 38	[1473 x 965]	6500	[3100]	0.1	[25]	AUTO	LOUVERED (1)
EH1	ROOF	EXIST. ISOL. RM	EXHAUST	DUCTED	18 x 18	[457 x 457]	200	[94]	0.05	[13]	BACKDRAFT	LOW SILHOUETTE (1)

AIR FLOW MEASURING DEVICE SCHEDULE													
MARK	LOCATION	SYSTEM AND/OR SERVICE	AIR FLOW				DUCT SIZE				APD		REMARKS
			MIN		MAX		WIDTH		HEIGHT				
			CFM	[L/s]	CFM	[L/s]	IN	[mm]	IN	[mm]	IN	[mm]	
AFMD1-B0320A	B0320	AHU-B0320A	800	[380]	6500	[3100]	38	[950]	24	[600]	0.1	[3]	OUTSIDE AIR
AFMD2-B0320A	B0320	AHU-B0320A	3700	[1700]	6500	[3100]	38	[950]	24	[600]	0.1	[3]	RETURN AIR
AFMD3-B0320A	FAN INLET	AHU-B0320A	4500	[2100]	6500	[3100]	-	[]	-	[]	0.1	[3]	SUPPLY AIR

LOUVER SCHEDULE										
MARK	SERVICE	AIR FLOW		SIZE WxH		FREE AREA		MAX APD		REMARKS
		CFM	[L/s]	IN x IN	[m x m]	SF	[sq m]	IN WG	[Pa]	
L-1	GRAVITY TRANSFER	0	[-]	40 x 88	[1.0 x 2.2]	13.3	[1.2]	-	[-]	*GREENHECK ESJ-401*(1)(2)(3)

1. PROVIDE WITH BIRD SCREEN.
2. COLOR AND FINISH AS SELECTED BY ARCHITECT FROM MANUFACTURER'S OPTIONAL FINISHES.
3. FRAME TYPE AS SELECTED BY ARCHITECT.

AIR COOLED CONDENSING UNIT SCHEDULE (AIR CONDITIONING SERVICE)																								
MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	TYPE	MIN REFRIGERATION		REFRIGERANT	MAX SUCTION TEMP @ COMP		OA TEMP		MIN EER	IPLV	COMPRESSOR MOTOR				CONDENSER FAN MOTOR				REMARKS		
					MBH	[kW]		°F	[°C]	°F	[°C]			# COMP	NOMINAL POWER		PHASE	VOLT	# FANS	NOMINAL POWER			PHASE	VOLT
															HP	[kW]				HP	[W]			
ACCU-B0320A	ON GRADE	BLDG 111 SO. ENTRY	AHU-B0320A	SCROLL	254	[870]	410a	42	[6]	110	[43]	10.0	10.9	2	19.8 RLA	[]	3	460	2	1	[750]	3	460	(1)(2)

- (1) UL-RATED STARTERS SHALL BE FURNISHED BY MANUFACTURER OF EQUIPMENT.
(2) DUAL REFRIGERANT CIRCUITS.

AIR HANDLING UNIT SCHEDULE																
MARK	LOCATION	AREA AND/OR BLDG SERVED	TYPE	AIR FLOW	AIR FLOW						SUPPLY FAN MARK	PREFILTER MARK	AFTER FILTER MARK	PREHEAT COIL MARK	COOLING COIL MARK	REMARKS
					SUPPLY		MIN OA		RETURN							
					CFM	[L/s]	CFM	[L/s]	CFM	[L/s]						
AHU-B0320A	B0320A	BLDG 111 SO. ENTRY	PRE-ENGINEERED	VAV	6500	[3100]	800	[380]	5700	[2700]	SF-B0320A	PF-1-B0320A	PF-2-B0320A	HHHC-B0320A	DXCC-B0320A	TRANE SIZE 14

(1) DESIGN BASED ON MODULAR AIR HANDLING UNIT AS MANUFACTURED BY TRANE (SIZE 14) HAVING OVERALL DIMENSIONS OF APPROXIMATELY 230" LONG 42" HIGH 72" WIDE

FAN SCHEDULE																									
MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW		TSP		FAN							MOTOR ELECTRICAL						CONTROL SEQUENCE	REMARKS			
				CFM	[L/s]	IN	[Pa]	TYPE	WHEEL	CLASS	ARRANGEMENT, ROTATION, AND DISCHARGE	DIAMETER		MIN % EFF	DRIVE	FAN MAX RPM	NOMINAL POWER			PHASE			VOLT	RPM	SPEED CONTROL
								SINGLE WIDTH SINGLE INLET	AIRFOIL	II	PLENUM	22	[550]	67%	DIRECT	2454	8.9	15	[11]	3	460	2020	VARIABLE		---

DIRECT EXPANSION COOLING COIL SCHEDULE																									
MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	AIR FLOW	MAX FACE VELOCITY	APD	EAT				LAT				TOTAL CAPACITY	SENSIBLE CAPACITY	REFRIGERANT	SATURATED SUCTION TEMP		REMARKS					
							Db		Wb		Db		Wb												
							CFM	[L/s]	FPM	[M/s]	IN WG	[Pa]	°F	[°C]							°F	[°C]	°F	[°C]	°F
DXCC-B0320A	B0320A	BLDG 111 SO. ENTRY	AHU-B0320A	6500	[3100]	475	[1]	0.65	160	80	[27]	67	[19]	53	[12]	52	[11]	250	[850]	195	[670]	410A	44	[7]	INTERWIND CIRCUITING TYPE

HOT WATER HEATING COIL SCHEDULE																																
MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	APPLICATION	AIR FLOW		MAX FACE VELOCITY		APD	TEMPERATURES				TOTAL MIN CAPACITY		HOT WATER								% GLYCOL	REMARKS							
					CFM	[L/s]	FPM	[M/s]		IN	WG	[Pa]	EAT		LAT		MBH	[kW]	GPM	[L/s]	FLOW		EWT			LWT		WPD	[kPa]	BRANCH PIPE		
													°F	[°C]	°F	[°C]					°F	[°C]	°F			[°C]	°F			[°C]	°F	[°C]
HHHC-B0320A	B0320A	BLDG 111 SO. ENTRY	AHU-B0320A	PREHEAT	6500	[3100]	476	[2]	0.3	[75]		45	[7]	75	[24]	220	[750]	15	[1]	180	[82]	150	[66]	8	[24]	1.5	[38]	0		(1)		
VAV-B0320	B0320			REHEAT	VAV REHEAT	2610	[1200]	550	[3]	0.2	[50]	55	[13]	100	[38]	130	[440]	10	[1]	180	[82]	150	[66]	3	[9]	1.5	[38]	0				
VAV-C1B508	1355	C1B508		REHEAT	VAV REHEAT	3600	[1700]	760	[4]	0.2	[50]	55	[13]	100	[38]	180	[610]	12	[1]	180	[82]	150	[66]	3	[9]	1.5	[38]	0		(2)		
VAV-1355	1355	1355		REHEAT	VAV REHEAT	350	[170]	350	[2]	0.2	[50]	55	[13]	100	[38]	17.5	[60]	2	[]	180	[82]	150	[66]	3	[9]	1	[25]	0				
VAV-1358	1357	1358		REHEAT	VAV REHEAT	600	[280]	515	[3]	0.2	[50]	55	[13]	100	[38]	30	[100]	2	[]	180	[82]	150	[66]	3	[9]	1	[25]	0				

- (1) PUMPED HOT WATER COIL IN AHU
(2) PIPE COIL WITH 3-WAY TEMPERATURE CONTROL VALVE

AIR FILTER SCHEDULE																
MARK	LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	MERV RATING	AIR FLOW		APD		HOUSING TYPE	AREA	CARTRIDGES		REMARKS			
							INITIAL	CHANGEOVER			SIZE	ARRANGEMENT				
					CFM	[L/s]	IN	[mm]	IN					[mm]	IN	[mm]
PF-1-0320A	B0320A	BLDG 111 SO. ENTRY	AHU- B0320A	7	6500	[3100]	0.25	[6]	1.0	[25]	SIDE	13.4 S.F.	(4) 20 x 16 x 1 (2) 25 x 16 x 1	[508 x 406 x 25] [635 x 406 x 25]	3 WIDE BY 2 HIGH	—
PF-2-0320A	B0320A	BLDG 111 SO. ENTRY	AHU- B0320A	11	6500	[3100]	0.3	[8]	1.5	[38]	SIDE	13.4 S.F.	(4) 20 x 16 x 12 (2) 25 x 16 x 12	[508 x 406 x 305] [635 x 406 x 305]	3 WIDE BY 2 HIGH	—

